

## **U/D Considerations**

The proposed facility provides contour protection to all existing stations with the exception of facility ID 71189 (channel 270), facility ID 54915 (channel 274) and facility ID 41080 (channel 275). These stations are second/third adjacent to the proposed translator. A U/D study will show that no interference will be caused to those stations.

The signal strength of facility ID 54915 at the proposed site presents the worst-case scenario, so 55 dBu will be used in following showings. Using a U/D ratio of 40 dB for second/third adjacent protection, the 95 dBu contour of the proposal was studied.

Due to antenna height above ground (0.113 km), this proposal fully protects facility ID 54915 (as well as the other stations). Attached below is freespace interference study using the freespace formula for calculating distance to contours.

From the study it can be noted that nowhere on the ground, beyond 113 meters from the tower, does the signal exceed 95 dBu. A red circle is drawn on the map at 113 meters from the tower. Because there is no four-lane roads, houses or high-rises within 113 meters of the tower, no population affected by this proposal.

This application therefore fully meets the requirements of 74.1204(d) for a no-interference showing.

### Freospace Interference Study for a given antenna based on Vertical Radiation Pattern

Antenna Make: ETC

Antenna Model: FM-4 (1 lambda)

Depression Angle from Antenna	Antenna Relative Field	ERP Watts	ERP dBk	Distance to Ground from Antenna (km)	Free Space Signal (dBu)	2.5 dB Loss for Reflection	Signal Strength at Ground (dBu)	Circular Distance From Tower (m)
90	0.140	3.528	-24.52	0.1130	101.3	0	101.3	0.00
85	0.200	7.200	-21.43	0.1134	104.4	0	104.4	9.89
80	0.270	13.122	-18.82	0.1147	106.9	0	106.9	19.92
75	0.320	18.432	-17.34	0.1170	108.2	0	108.2	30.28
70	0.330	19.602	-17.08	0.1203	108.2	0	108.2	41.13
65	0.250	11.250	-19.49	0.1247	105.5	0	105.5	52.69
60	0.100	1.800	-27.45	0.1305	97.2	0	97.2	65.24
55	0.050	0.450	-33.47	0.1379	90.7	0	90.7	79.12
50	0.160	4.608	-23.36	0.1475	100.2	0	100.2	94.82
45	0.090	1.458	-28.36	0.1598	94.5	0	94.5	113.00
40	0.060	0.648	-31.88	0.1758	90.1	0	90.1	134.67
35	0.110	2.178	-26.62	0.1970	94.4	0	94.4	161.38
30	0.002	0.001	-61.43	0.2260	58.4	0	58.4	195.72
25	0.150	4.050	-23.93	0.2674	94.5	0	94.5	242.33
20	0.001	0.000	-67.45	0.3304	49.1	0	49.1	310.46
15	0.250	11.250	-19.49	0.4366	94.6	0	94.6	421.72
10	0.100	1.800	-27.45	0.6507	83.2	0	83.2	640.85
5	0.600	64.800	-11.88	1.2965	92.8	0	92.8	1291.60

Distance to Ground Level assumes flat ground or a site where the ground level is above average terrain in all azimuth

Maximum ERP  
Radiation Center AG

180 watts  
0.113 km

Max dBu to Ground Level

94.63

